wherein said [the] electrosurgical generator further comprises [comprising]:

a current sensor for measuring [the] an output current delivered by the electrosurgical generator;

a microprocessor electrically connected to the current sensor and the impedance sensor for calculating [the] a heating factor and a cooling factor of the tissue under the return electrode, the calculation of the heating factor being based at least in part on the measured output current; and

a controller electrically connected to the microprocessor for adjusting [the] a power supply of the generator in response to [the] a relationship of the calculated heating and cooling factors.

17. The generator of claim 16, wherein the microprocessor includes a first algorithm for calculating the heating factor and a second algorithm for calculating the cooling factor.

~~18~~. (Amended) The generator of claim ~~17~~, wherein the first algorithm is defined as

$$[K_c]\ \underline{K_h}\ I^2\ t_{on}$$

wherein $[K_c]\ \underline{K_h}$ is [the] a constant representative of [the] a measured impedance in Ohms of the return electrode, I^2 is the square of [the] said measured output current in milliamps and t_{on} is the time in seconds that the output current is delivered.

~~19~~. (Amended) The generator of claim [18] ~~17~~, wherein the second algorithm is defined as

$$[K_h]\ \underline{K_c}\ t_{off}$$

wherein $[K_h]\ \underline{K_c}$ is [the] a constant representative of the time it takes for the [body] tissue to cool down in degrees per minute and t_{off} is the time in seconds that the output current is not being delivered.

~~20~~. (Amended) The generator of claim ~~18~~, wherein the measured impedance is